UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/015,013	12/11/2001	Carroll Philip Gossett	PGOSS-004.US.P	2062

7590   08/29/2006

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EXAMINER
NGUYEN, DUNG X

ART UNIT	PAPER NUMBER
2611	

DATE MAILED: 08/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

Office Action Summary	Application No.	Applicant(s)
	10/015,013	GOSSETT, CARROLL PHILIP
	Examiner	Art Unit	
	Dung X Nguyen	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>October 12, 2005</u>.

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1, 2, 4 - 7, 10, 11, 13 - 21, 23 - 28, and 30</u> is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1, 2, 4 - 7, 10, 11, 13 - 21, 23 - 28, and 30</u> is/are rejected.

7)☒ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>11 December 2001</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All   b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>7/11/2005</u>.

4)☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____ .

Response to Arguments

1.   Applicant's arguments filed on October 12, 2005 have been fully considered and persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made. Claims 3, 8, 9, 12, 22, and 29 have been canceled.

Claim Rejections - 35 USC § 102

2.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> *A person shall be entitled to a patent unless –*
>
> *(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.*

3.   **Claims 20 and 21 are rejected** under 35 U.S.C. 102(b) as being Anticipated by Bernadini et al. in "Linear Prediction Methods for Interference Elimination in Spread Spectrum Systems", Eueopean Transactions on Telecommunications and Related Technologies, Milano, IT, vol. 1, N. 1, January-February 1990, pp.67 – 78, listed as item II in the IDS filed 7/11/05).

Regarding claim 20, Bernardini et al. teaches a method for filtering periodic or quasi-periodic signals in a spread spectrum signal (see title, figure 6), comprising:

- Receiving the spread spectrum signal (input to "threshold filter" in figure 6);
- Digitizing the spread spectrum signal (A/D in figue 6);
- Determining linear predictive coefficients corresponding to the spread spectrum signal ('whitening filter" in figure 6, Eq. 16 on page 70);
- Discarding the linear predictive coefficients, wherein the linear predictive coefficients are not used to actively filter the spread spectrum signal (EQ. 17 on page 70);
- Determining error coefficients corresponding to the spread spectrum signal (EQ. 18 on page 70);

- Processing the error coefficients to retrieve information contained in th spread spectrum signal ("D/A", "correlator", "data demod" in figure 6).

Regarding claim 21, as followed by the limitations analyzed in claim 20, Bernadini et al. teaches linear predictive coding filter (page 70, first column, lines 3 - 11).

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> *(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.*

5.   **Claims 1, 2, 4 – 7, 10, 23 – 25, 27, and 28 are rejected** under 35 U.S.C. 103(a) as being unpatentable over further in view Bernadini et al. in "Linear Prediction Methods for Interference Elimination in Spread Spectrum Systems", Eueopean Transactions on Telecommunications and Related Technologies, Milano, IT, vol. 1, N. 1, January-February 1990, pp.67 – 78, listed as item II in the IDS filed 7/11/05), and further in view of Darabi et al. (US patent # 6,970,681).

Regarding claim 1, Bernardini et al. teaches a spread spectrum receiver comprises a digital filter ('whitening filter" in figure 6) that outputs a firs5rt set of terms including linrear predictive coefficients (EQ. 16 on page 70) representing interfering periodic or quasi-periodic signals (Eq. 50 on page 74) within a specified band containing the spread spectrum signal and the digital filter outputs a second set of terms including predictive coefficients (Eq. 18 on page 70) that do not include the interfering periodic or quasi-periodic signals (Eq. 17 of page 70), wherein the linear predictive coefficients are discarded and the corresponding interfering

periodic or quasi-periodic signals are filtered out, and wherein the error coefficients are used for signal processing ("D/A", "correlator", "data demod" in figure 6).

Bernadini et al. does not particularly6 disclose an antenna for receiving the spread spectrum signal. It is well known an antenna is required to receive a radio or wireless signal. Darabi teaches an antenna for receivinhg a spread spectrum signal (column 1, lines 30 – 34, column 3, lines 6 =- 18) would have been obvious to a person of ordinary skill in the art to incorporate an antenna in the system of Berbadini et al. so as to receive the spread spectrum signal.

Regarding claim 2, as followed by the limitations analyzed in claim 1, the digital filter Bernadini et al. is a linear predictive coding filter (page 70, first column, lines 3 – 11).

Regarding claims 4 – 6, respectively,, as followed by the limitations analyzed in claim 1,Bernadini et al. teaches the claimed subject mater except the limitations of IEEE 802.11(b), Bluetopth, or CDMA. Darabi et al. teaches a receiver that follows the wireless standard such as IEEE 802.11(b), Bluetooth, or CDMA (column 3, lines 6 – 18). Therefore, it would have been obvious to a person of ordinary skill in the art to comply with wireless standards such as IEEE 802.11(b). Bluetooth, or CDMA so as to facilitate the data communications.

Regarding claim 7, as followed by the limitations analyzed in claim 1, Bernadini et al. further teaches an analog-to-digital converter (A/D in figure 6) for reducing the dynamic range of the incoming signal (page 73, second column, lines 10 – 16).

Regarding claim 10, as followed by the limitations analyzed in claim 1, Bernadini et al. further teaches the predictive coding filter outputs a predictive error which is use3d for signal processing purposes ("D/A", "corelator", "data demod" in figure 6.) for recovering the binary information (page 73, second column, lines 13 - 17).

Regarding claims 23 – 25, respectively, as followed by the limitations analyzed in claim 20, the limitations are analyzed in the same manner set forth as claims 4 – 6.

Regarding **claim 27,** Bernadini et al. teaches a spread spectrum receiver, comprising a digital filter (see title, "whitening filter" in figure 6) that is used to remove a periodic or quasi-periodic signals (Eq. 50 on page 74) within a specified band containing the spread spectrum signal (page 70, first column, line 3 – 111 and Eqs. 16 – 18) and the digital filter outputs a first stet of terms (Eq. 16 on page 70) which corresponding to the periodic signals and a second terms (EQ 18. on page 70) which does not i9nclude the periodic signals; an analog-to-digital converter ('A/D' in figure 6) which converts the spread spectrum signal into a digital signal, which is inputted directly into the digital filter. Bernadini et al. does not specially discloses an antenna for receiving the spread spectrum signal.

Darabi et al. teaches an antenna for receiving a spread spectrm signal (column 1, lines 30 – 34, column 3, lines 6 – 18). It would have been obvious to a person to incorporate an antenna in the system of Bernadini et al. so as to receive the spread spectrum signal.

Regarding **claim 28,** as followed by the limitations analyzed in claim 27, Bernadini et al. further discloses wherein the first set of terms ar4e discarded (EQ. 17 on page 70) and the second of terms ar4e used for signal purposes ('D/A', "correlator", "data demod" in figure 6).

6.   **Claims 11, 13, 15, and 30 are rejected** under 35 U.S.C. 103(a) as being unpatentable over further in view Bernadini et al. in "Linear Prediction Methods for Interference Elimination in Spread Spectrum Systems", Eueopean Transactions on Telecommunications and Related Technologies, Milano, IT, vol. 1, N. 1, January-February 1990, pp.67 – 78, listed as item II in the IDS filed 7/11/05), and further in view of Tanrikulu et al. (US patent # 7,050,565).

Regarding **claim 11,** Bernadini et al. teaches a linear predictive coding filter (see title, "whitenuing filter" in figure 6) for filtering out periodic or quasi-periodic signals (Eq. 50 on page 74) in a spread spectrum, comprising: a linear predictive coding filters out periodic signals correspond to predictive coefficients (Eqs. 16 and 17 on page 70, "whitenuing filter" in figure 6) and the linear predictive coding filter outputs error information (Eq. 18 on page 70) which is then used for signal processing purposes ("D/A", "correlatror", "data demod" in figure 6).

Bernadini et al. does not specify the LPC gradient adaptive lattice filter.

However, Tanrikulu et al. teaches that the LPC gradient adaptive lattice filter method is known to provide optimal filter coefficients (column 3, lines 16 – 23.The method minimizes the prediction error.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to incorporate the gradient adaptive lattice method in the linear predictive filter of BeOrnadini et al. so as to minimize the prediction error (column 3, lines 21 – 23 of Tanrikulu et al.).

Regarding claim 13, as followed by the limitations analyzed in claim 11, discloses the linear predictive coding filter (column 10, lines 19 – 23)., Tanrikulu et al. further discloses that the linear predictive coding filter, wherein the spread spectrum system comprises a direct sequence spread spectrum system (page 67, first column, INTRODUCTION, line 5) for processing the spread spectrum system.

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Regarding claim 15, as followed by the limitations analyzed in claim 11, Bernadini et al. further discloses the linear prediction term is discarded (EQ. 17 on page 70).

Regarding clam 30, Bernadini et al. discloses a method for filtering periodic or quasi-periodic signal (see title, figure 6), comprising receiving the spread spectrum signal input to "threshold filter" in figure 6; digitizing the spread spectrum signal (A/D in figure 6); using a linear predictive coding filter to determine linear predictive cdoefficients nand error coefficients corresponding to the spread spectrum signal (page 70, first column, lines 3 – 11 and Eqs. 16 – 18); discarding the linear predictive coefficients (Eq. 17 on page 70); using error coefficients in signal processing (Eq. 18 on page 70 and "D/A", "correlator", "data demod" in figure 6).

Bernadni et al. does not particularly disclose a gradient adaptive lattice method to determine coefficients. Tanrikulu et al. teaches that the gradient adaptive lattice method is

known to provide optimal filter coefficients (column 3, lines 16 – 23). The method minimizes the prediction error. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to incorporate the gradient adaptive lattice method in the linear predictive filter of Bernadini et al. so as to minimize prediction errors.

7.   **Claims 14 and 16 – 19 are rejected** under 35 U.S.C. 103(a) as being unpatentable over further in view Bernadini et al. in "Linear Prediction Methods for Interference Elimination in Spread Spectrum Systems", Eueopean Transactions on Telecommunications and Related Technologies, Milano, IT, vol. 1, N. 1, January-February 1990, pp.67 – 78, listed as item II in the IDS filed 7/11/05), in view of Tanrikulu et al. (US patent # 7,050,565), and further in view of Darbi et al. (US patent # 6,970,681 B2).

Bernadini et al. in view of Tanikulu et al. teaches the claimed subject matter except the limitations of the wireless standard such as IEEE 802.11(b), Bluetoth, or CDMA. Darabi et al teaches a receiver that follows the wireless standards such as IEEE 802.11(b), Bluetooth, or CDMA (column 3, lines 6 – 18). Therefore, it would have been obvious to a person o0f ordinary skill in the art to comply with wireless standards such as 802.11(b), Bluetooth, or CDMA so as to facilitate data communications. Also note that the Bluetooth employs a frequency-hopping scheme (column 1, lines 59 - 60 of Darabi et al.).

8   **Claim 26 is r ejected** under 35 U.S.C. 103(a) as being unpatentable over further in view Bernadini et al. in "Linear Prediction Methods for Interference Elimination in Spread Spectrum Systems", Eueopean Transactions on Telecommunications and Related Technologies, Milano, IT, vol. 1, N. 1, January-February 1990, pp.67 – 78, listed as item II in the IDS filed 7/11/05), in view of Darabi et al. (US patent # 6,970,681 B2) and Tanrikulu et al. (US patent # 7,050,565),

Regarding claim 26, Bernadinini et al. Teaches a spread spectrum receiver comprises a linear predictive coding filter (see title, "whitening filter" in figure 6 for filtering out periodic or quasi-periodic signal (Eq. 50 on page 74)) within a specified band containing the spread spectrum signal (page 70, first column, lines 3 – 11, and Eqs. 16 – 18). Bernadini et al. does not

specifically disclose (a) an antenna for receiving the spread spectrum signal and (b) the filter having a lattice structure.

With respect to (a), Darabi et al. teaches an antenna for receiving a spread spectrm signal (column 1, lines 30 – 34, column 3, lines 6 – 18). It would have been obvious to a person to incorporate an antenna in the system of Bernadini et al. so as to receive the spread spectrum signal. With respect to (b), Tanrikulu teaches that the gradient latiice method is known nto provide optimal filter coefficients column 3, lines 16 – 23). The method minimizes the prediction error. Therefore, it would have been obvious to a person of ordinary skill in the art to incorporate the gradient adaptive lattice method in the linear predictive filter of Bernadini et al. so as to minimize prediction errors.
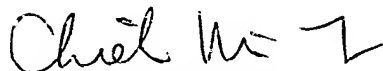
Contact Information

10   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dung X. Nguyen whose telephone number is (571) 272-3010. The examiner can normally be reached on Monday through Friday from 8:30 AM to 17:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Fan, Chieh M. can be reached on (571) 272-3042. The fax phone numbers for this group is (571) 273-3021.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-2600.

DXN

August 14, 2006

CHIEH M. FAN
SUPERVISORY PATENT EXAMINER